

0053559

Recra LabNet Philadelphia **Analytical Report**

Client: TNU HANFORD B99-078

Chemical and Environmental Measurement Information

RFW#: 0004L024

SDG/SAF#: H0820/B99-078

W.O #: 10985-001-001-9999

Date Received: 04-19-00

DIESEL RANGE ORGANICS

The set of samples consisted of three (3) soil samples collected on 04-17-00.

The samples and their associated QC samples were prepared on 04-30-00 and 05-03-00 and analyzed according to Recra OPs based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 05-01-00 and 05-03-00. The analysis met the intent of method WTPH-D.

- 1. The cooler temperature has been recorded on the chain-of-custody.
- 2. All required holding times for extraction and analysis were originally met. Due to low spike recoveries the samples were re-extracted outside of hold time. Both the original and the re-extracted results have been reported. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 3. All initial calibrations associated with this data set were within acceptance criteria.
- 4. All diesel continuing calibration standards analyzed prior to the sample extracts were within acceptance criteria.
- 5. All obtainable surrogate recoveries were within acceptance criteria.
- One (1) of two (2) blank spike recoveries was outside acceptance criteria. A copy of the 6. Sample Discrepancy Report (SDR) has been enclosed.
- 7. Two (2) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

8. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor

Vice President

Philadelphia Analytical Laboratory

EDMC

R:\group\hplc\narr\dro\2000\\04-024d.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are in the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages

GLOSSARY OF DIESEL DATA

DATA OUALIFIERS

- U = Indicates that the compound was analyzed for but not detected.

 The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates spiked compound.

Recra LabNet - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

RFW Batch Number: 0004L024 Client: TNU-HANFORD B99-078 Work Order: 10985001001 Page: 1 Cust ID: BOYOP5 BOYOP5 BOYOP5 BOYOP5 BOYOP6 BOYOP6 Sample RFW#: 001 001 001 MS 001 MSD 002 002 Information Matrix: SOIL SOIL SOIL SOIL SOIL SOIL D.F.: 1.00 1.00 1.00 1.00 1.00 1.00 Units: mq/kq ma/ka mq/kq mq/kq ma/ka ma/ka REPREP REPREP REPREP REPREP p-Terphenvl 98 % 70 % 71 % 74 % 97 % 75 % Diesel Range Organics 18 13 67 옿 69 % 24 13 Cust ID: BOYOP6 BOYOP6 BOYOP7 BOYOP7 BLK BLK BS Sample RFW#: 002 MS 002 MSD 003 003 00LE0478-MB1 00LE0478-MB1 Information Matrix: SOIL SOIL SOIL SOIL SOIL SOIL D.F.: 1.00 1.00 1.00 1.00 1.00 1.00 Units: mg/kg mq/kg mq/kq mq/kg mg/kg mq/kq REPREP p-Terphenyl 100 % 96 % 99 % 75 % 80 % 95 Diesel Range Organics 18 * %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

25 * %

9) 35 31W

18

34

Report Date: 05/30/00 16:14

4.00 U

Recra LabNet - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

Report Date: 05/30/00 16:14 Client: TNU-HANFORD B99-078 Work Order: 10985001001 Page: 2 RFW Batch Number: 0004L024 Cust ID: BLK BLK BS Sample RFW#: 00LE0490-MB1 00LE0490-MB1 SOIL SOIL Information Matrix: 1.00 D.F.: 1.00 mg/kg Units: mg/kg 69 % 73 * p-Terphenyl 76 % 4.00 U Diesel Range Organics

Mr.33.00

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Recra LabNet - Lionville Laboratory DRO ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B99-078

DATE RECEIVED: 04/19/00 RFW LOT # :0004L024

CLIENT ID	RFW	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
				···			
B0Y0P5	001		S	00LE0478	04/17/00	04/30/00	05/01/00
B0Y0P5	001	i	R1 S	00LE0490	04/17/00	05/03/00	05/04/00
BOYOP5	001	MS I	R1 S	00LE0490	04/17/00	05/03/00	05/04/00
B0Y0P5	001	MSD I	R1 S	00LE0490	04/17/00	05/03/00	05/04/00
BOYOP6	002		s	00LE0478	04/17/00	04/30/00	05/01/00
BOYOP6	002]	R1 S	00LE0490	04/17/00	05/03/00	05/04/00
B0Y0P6	002	MS	s	00LE0478	04/17/00	04/30/00	05/01/00
B0Y0P6	002	MSD	S	00LE0478	04/17/00	04/30/00	05/01/00
B0Y0P7	003		s	00LE0478	04/17/00	04/30/00	05/01/00
BOYOP7	003	1	R1 S	00LE0490	04/17/00	05/03/00	05/04/00
LAB QC:	•						
BLK	MB1		s	00LE0478	N/A	04/30/00	05/01/00
BLK	MB1	BS	S	00LE0478	N/A	04/30/00	05/01/00
BLK	MB1		S	00LE0490	N/A	05/03/00	05/04/00
BLK	MB1	BS	s	00LE0490	N/A	.05/03/00	05/04/00

05-30-60

RECRA		

Custody Transfer Record/Lab Work Request Page 1 of 1 RECRA LabNet

0004L02	0	00	46	\bar{1} \alpha \alp	4
---------	---	----	----	--	---





011-20 PL	vii =	Hamford		H R	And the William	100	6	Refrige	rator	•		T	15		F)	H		5	Τ				<u> </u>			9
Est. Final Pro	(2.17.0)	划。 自己的 医自己经验检验			1						Liquid	jako Taring							100							0
Drolect #	7.9.E	5-col-ce	31-9QC	വവ	74.2			#/Type	Cont	ainer	Solid		104		J.A.	4	(2) (185.4.)	las								
Project Contr					1.6	TO THE	(e	Volume			Liquid	10 200 200	د		294-12			<u></u>			4.7					
RECRA Proje	Transfer of the first			72.44	206			TOTAL			Solid		190			4		190		100	181	8.7	,			
oc Spec		Del 240	TAT	9 13 22	~ 5 :	760	-3.0 -3.0	Presen	/ative	<u> </u>		ė i		ANIC		-		3.0	INV	DRG			142.3			
Date Rec'd	4.19.	00	てん Date Due	48600 6-19	00	4-20-6	ام	ANALY		_		-			P	±a		15 S		Т						
Account #								REQUE	STE)		VO VO	BNA	PCB PCB	Herb	超		30	Metal	8						
MATRIX						Metri				_					1		RE	CRA L	abNe	t Use	Only		1		· 	
CODES: S - Soil SE - Sediment	Lab ID	CI CI	lent ID/Desc	cription		Chose (v')	Mn [Matrix		ate lected	Time Collected		CLOSSH CLOSSH	OPCB PCB		SORO		THYZN								
SO - Solid SL - Sludge	·				.	MS N	(SO		L				8	Ø	<u> </u>	_		F	<u> </u>	<u> </u>	<u> </u>					
W - Water O - Oil	<u>001</u>	Bo)	YOP5					<u>s</u> :	Ťu	1 100	1030	9 94 3 55	X §	1		Х	175 14 8 25				1					
A - Air DS - Drum	<u> </u>	BO	YOP6			i zir N			35.		<u> </u>	erir Listensi	K s			X				2000 (1) 2000 (1)	8,743		<u> </u>			
Solide DL - Drum	<u>00</u> 2	ა გი'	YOPT		10 148 18 1 2				4		1030		A.	*		X	3 A.			11.5		61	.1 d .2			
Liquids	00	BOY	1092					8 3777 8 3777 8 3777	2.7	e . A A	0922			X :	4.00			X		4.64	1.4					
Leachate WI - Wice	065	5 Boy	083								0925		igger Myr ig					Х					i Length	6.1		
X - Other F - Fish	∞	BOY	1074	And the Market			7.7. 24.				0900	100		() Let			1 mg	X				1				
	∞^-	BOY	RNOS	A CAN		生物的	En 13 20		i		¢855	45.00°						X			3.73	1.4	in the second	7	,	
	300	Boy	PNO			有用		1.0	清	4	0900							X			4.72					
	000	Bos	1090	至少是200	ar or a. Majarah		143	2 4 4			0910	1						X								
· <u></u>	010	Boy	OPI								વ્યા 8				4 22			X						(2)14 (2)14		
Special Instruct	tions:	505 89	9-078	3		DA	ATE/R	EVISION	/ I	. ~	m	ا مئ	. C	~_	<u> </u>						REC	RA Let	Net Us	e Only		
		<u> </u>				-					r	•		_				ew.	Se	imples Shippe	were:			С Таре		
											105 C					CY	<u>m'</u>	חט		Shippe and Del				Present cka <i>pa</i>		
						7	90	<u> </u>	э. 🏻	AI	Chan	Act.	_cot_	1dc	4				- Ai	rbill # _		_		Unbroke		
								·	4						<u>ر</u>				- 1 '	Ambie	•		3)	ckage Present	ος San	np le
									5			_	_							Recely andition				_	Y) or	N
									 R								•		4)	Labels	Indicat	e		Unbroke mple Y		,
Relinguished	, T	Received	Date	Time	Rel	lingulahe	ed .		Rece	lved		ate	Tim	. 7	Discr	epancie	s Betw	een.	Pr	operly (<i>P</i> -3	ed N	CO	C Reco	rd Pres	ent
by	_	by	DETE	1 11 11 4	 	by) Cite	b	<u>y</u>	ORIG				Same	Nes Lat	els an	d 🗻	5)	Receiv	ed With	in		(or or	
100 Ex		District	19/00	0930			IPO AS	SITE			- I				NOT	ES:				aury i		N	Cox Ter	pher 3	3	∘c
	· T	ノ ()	1	1 1	ł	37	MJ	ļ !=			REWR			- 1	#11	425	30	<u>~</u> ~		•	_					1

Bechtel Hanford Inc. CHAIN OF CUSTODY/SA							AMP	LE	ANAL	YSIS	RE	QUES	Γ		B99	0-078-158	Page <u>I</u> of <u>I</u>	
Collector Fahlberg			Com	pany Cont Todd	Act	Telepho 372-9						ect Coord NT, SJ	inator	Pri	ice Code	8N	Data Tu	_
Project Designation 200 Area Source of	haracterizati	on - 200-CW-I OU		pling Locat 10 East	tion						SAF B99			Aiı	r Quality		45	Days D
Ice Chest No.	Sml	- 598		Logbook L 1381-3	No.		COA B20CV	V1671	с		Fe	od of Shi d-EX						
Shipped To TMA/RECRA	\mathbb{R}	ecra	Offs	ite Propert	No. AQ	(BO	18	4		r	Bill	of Lading	/Air Bill	<u>5</u> Ç	57	953	-52	49
POSSIBLE SAMP	LE HAZAR N.C.	RDS/REMARKS		Pre	servation	Cool 4C							<u> </u>	_				<u> </u>
,,,,	100			Туре	of Container	аG												
				No. of	Container(s)	1	ļ	_					<u> </u>					
Special Handling a	and/or Stora	ge		<u> </u>	olume	120mL				<u>L</u>			<u> </u>		<u>, </u>	<u> </u>		
SAMPLE ANALYSIS						Semi-VOA - 8270A (TCL) TPH-Diesel Range - WTPH-D; PCBs - 8082									·			
Sample No	0.	Matrix *	Sample Dat	e 8	ample Time	į.	7	71				in the second					en Casable S	
B0Y0P5		Soil	4.17.0	0 1	020	×												
B0Y0P6		Soil	4.17.0	0	020	x							<u> </u>					
B0Y0P7		Soil	4.170	0 1	030	K	<u> </u>	4		<u> </u>			 					
	<u>_</u>						 	-		 	_		 					
CHAIN OF PO	OCCERCION	,	Sign/Pr	nt Names		<u> </u>	191	PECL	AL INSTR	UCTIO	Ne.		<u>L</u>					Matrix *
Relinquished By Relinquished By Relinquished By Relinquished By	DI GY	Date/Time 12 2 Pale/Time Date/Time Date/Time	Received By		911.C 2 4.A.	ate/Time ate/Time ate/Time ate/Time	<u>න</u>					n a ty re	non. spor	R. T	d loo Prov	ection.	``	S~Solf SE~Sodiment SO~Solid S ~Shedge W = Water O~Oil A~Ale DS~Drum Solids DL~Drum Liquids T~Tissue W!=Wipc L~Liquid
Relinquished By		Date/Time	Received By		D	ate/Time												V=Vegetation X=Other
Relinquished By		Date/Time	Received By		D	ate/Time												
LABORATORY SECTION	Received By					Ti	tie										ite/Time	
FINAL SAMPLE DISPOSITION	Disposal Met	hod							Dispo	sed By						D	ate/Time	

Bechtel Hanfor	d Inc.	CI	HAIN OF CUST	ODY/S	AMPL	E ANAL'	YSIS	RE	QUEST	7	B	9-078-157	Page <u>1</u>	of <u>l</u>
Collector Fahlberg		Compa M T	nny Contact odd	Telepho 372-9	ne No. 030				ct Coordi NT, SJ	nator	Price Code	8N		rnaround
Project Designation 200 Area Source characterizat	tion - 200-CW-1 OU		ing Location East					SAF B99-			Air Quali	y 🗆	45	Days -
Ice Chest No. Sm	598		Logbook No. 1381-3		COA B20CW1	671C			od of Ship d-EX	ment				
Shipped To TMA/RECRA	ecea	Offsite	Property No. A Ø	ØÐI	82		r	Bill	of Lading/	Air Mill	35_	795	7-5	269
POSSIBLE SAMPLE HAZA			Preservation	Cool 4C				}			}	}		}
Howe	_		Type of Container	aG										
Special Handling and/or Store			No. of Container(s)	1 120mL	 	 		_				 		
Special Handling and Store		 	Volume	Hydrazine -	 	 -	_					-		
	SAMPLE ANAL	YSIS		D13#5	}		}				1			
					1									
Sample No.	Matrix *	Sample Date	Sample Time		Ti.		1	a San Me						
B0Y0P2	Soil	4.17.00	0922	X							Bo	WRI		
B0Y0P3	Soil	4.17.00	0925	X							BC	NUCR	Ĺ <u></u> .	
B0Y0P4	Soil	4.17.00	0900		<u> </u>		_				BC	WCR.	<u> </u>	
					<u> </u>									
CHAIN OF POSSESSION		Sign/Print		de/Time	SPE	CIAL INSTR	UCTIO	DNS						Matrix *
Relinquished By RCARR R. F. 4 16 ac	Date/Time 124	TRAN	Brear 4.17	100	่อนา									5=5oil SE=Sediment
Religanisted Bi LT Lucy 1	1800/1430	Received By		te/Time										SO=Solid S = Sludge W = Water O=Oil
Relinquished By	Date/Time	Received By		te/Time										A=Air DS=Dnum Solids
MEDE 4.19.0 Relinquished By	Date/Time	Received By		ON30 Me/Time										DL.*Drum Liquids T*Tissuc WI*Wipe L*Liquid
Retinquished By	Date/Time	Received By	Da	te/Time										V=Vegetation X=Other
Relinquished By	Date/Time	Received By	Da	te/Time										1
LABORATORY Received By SECTION				Tit	ile .	- 						Da	te/Time	
FINAL SAMPLE Disposal Met DISPOSITION	hod					Dispo:	sed By					Di	nte/Time	

Bechtel Hanf	ord Inc.	СН	AIN OF CUST	ODY/S	SAMPL	E ANAL	YSIS	RE(QUEST		B9	9-078-156	Page <u>i</u>	ol Ī
Collector Fahlberg		Compar M To	ty Contact dd	Telepho 372-9				TREN		nator	Price Code	8N		irnaround Days
Project Designation 200 Area Source characteri	zation - 200-CW-1 OU	Samplin 200 E	g Location ast					SAF N B99-0		/	Air Qualit	у 🗆		
ice Chest No. SM	1.598	Field La EL 13	ogbook No. 381-3		COA B20CW	671C		Fed	od of Ship I-EX					
Shipped To TMA/RECRA	Lecra	Offsite	Property No.	7ØC	182	 	f	Bill o	Lading/	Air Bill N	795	3-5	عماح	\
POSSIBLE SAMPLE HAZ			Preservation	Cool 4C	{			•	i					
Nov	1		Type of Container	аG										
_			No. of Container(s)	120mL			ļ	_		ļ 	<u> </u>	 	<u> </u>	
Special Handling and/or S	lorage		Volume		<u></u>	<u> </u>						 	<u> </u>	ļ
	SAMPLE ANAL	.V\$18	·	Hydrazine - D1385				- }			-			
	ONIN DE MINE	.1010		}							-	}		
Sample No.	Matrix *	Sample Date	Sample Time								**************************************	17 Table 1 Tab		
BOYON8	Soil	4.17.00	0855	X						E-100 - 1040	1301	JURC		
BOYON9	Soil	4.17.00	0900	ス										
B0Y0P0	Soil	4.17.00	0910	人				$\overline{}$			T}	1.		
B0Y0P1	Soil	4.17.00	0918	X	ļ			\Box			0			
CHAIN OF POSSESS	ION ION	Sign/Print l	Nomes	<u> </u>	Tens	CIAL INSTR	UCTIO	NE NE		<u> </u>	<u> </u>	1	<u> </u>	Matrix *
Relinquished By	Date/Time /29	Baccived By	Karon	ite/Time		CIALINSI	COCIAC	J143						S=Soil SE=Sediment
Relinquisted Bulk	PIONAS	Received By	2 V	ite/Time										SO-Solid S =Sludge W = Water O-OH
Relinquished By	Date/Time	Received By	The second second	te/Time										A=Air D5~Drum Solids
Relinquished By	419.00 0930 Date/Time	Received By	7-14-C	DO DES de/Time	<u>u</u>									DL=Onim Liquids T=Tissac W!+Wipe L=Liquid
Relinquished By	Date/Time	Received By	Da	te/Time										L=Liquid V=Vegetation X=Other
Relinquished By	Date/Time	Received By	Da	ite/Time										
LABORATORY Received SECTION	Ву	_ 		T	tie							Đ	ate/Time	•
FINAL SAMPLE Disposal DISPOSITION	Method					Dispo	sed By					Ī	Date/Time	

<u>Origi</u>	DAL Dayres
SDR # Revisi Date	
SAMPLE DISPOSITION RECORD	
SAF: B99-078 OU: 200-CW-1 Project ID: 200-CW-1 Task ID: 1	
Sampling Event: 200 Area Source Characterization 200-CW-1 Operable Unit	t
Laboratory: TMA/RECRA	
Task Manager: M. E. Todd Sampling Information: Number of Samples: 3 ID Numbers: B0Y0P5, B0Y0P6, B0Y0P7 Matrix: Soil Collection Date: 04/17/00	
Issue Background:	
Class: Project Data Use General Laboratory Validation Direction Direction	Sample Management Direction
Type: Cancellation of Analyses Description: Cancellation of PCB and Semi-VOA Analyses	
Disposition:	
Description: The chain of custody for the listed samples mistakenly requested VOA analyses. The laboratory was requested to cancel these analyses for	
Justification: The PCB and semi-VOA data are not needed by the 200 Are Characterization project for the listed samples.	a Source
Approval Signatures: S. J. Trent Project Coordinator (PAnt/Sign Name)	4/25/05 /Date
M. E. Todd Task Manager (Print/Sign Name)	4/25/00 Date
Lack manager (Little Gight Marite)	Palè



Chemical and Environmental Measurement Information

Recra LabNet Philadelphia **Analytical Report**

Client: TNU-HANFORD B99-078

RFW#: 0004L024

SDG#: H0820 SAF#: B99-078

W.O. #: 10985-001-001-9999-00 Date Received: 04-19-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 10 soil samples.

- 2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
- 3. Sample holding times as required by the method and/or contract were met.
- 4. The cooler temperature was recorded on the chain-of-custody.
- 5. The method blank for Hydrazine was within method criteria.
- The Laboratory Control Sample (LCS) for Hydrazine was within the laboratory control 6. limits.
- 7. The matrix spike recovery for Hydrazine was below the 75-125% control limits.
- The replicate analyses were within the 20% Relative Percent Difference (RPD) control 8. limit.
- 9. Results for solid samples are reported on a dry weight basis.
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor

Vice President

Philadelphia Analytical Laboratory

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

Recra LabNet Philadelphia

WET CHEMISTRY METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	D2216-80		
% Moisture	D2216-80		ILMO4.0 (e)
% Solids	D2216-80		ILMO4.0 (e)
% Volatile Solids	D2216-80		
ASTM Extraction in Water	D3987-81/85		
BTU	D240-87		
CEC		9081	c
Chromium VI		3060A/7196A	
Corrosivity by coupon by pH		1110(mod) 90450	c
Cyanide, Total		9010B	ILMO4.0 (e)
Cyanide, Reactive		Section 7.3	
Halides, Extractable Organic		9020B	EPA 600/4/84-008
Halides, Total		9020B	EPA 600/4/84-008
EP Toxicity		1310A	
Flash Point		1010	
Ignitability		1010	
Oil & Grease	•	9071A	
Carbon, Total Organic		9060	Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	D240-87(mod)	5050	
Petroleum Hydrocarbons, Total Re	coverable	9071	EPA 418.1
pH, Soil		9045C	
Sulfide, Reactive		Section 7.3	
Sulfide		9030B(mod)	
Specific Gravity	D1429-76C/ _	D5057-90	
Sulfur, Total		9056	
Synthetic Preparation Leach		1312	
Paint Filter		9095A	· -+' .
Other: Sydrazine	Method:	Mis force (colo	rimetric)
Other:	Method	(F33615-3	84.D.4400/0016)

Recra LabNet Philadelphia METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

- 1. ASTM Standard Methods.
- 2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

L-WI-034/D-6/99

INORGANICS DATA SUMMARY REPORT 05/24/00

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 0004L024

MORK ORDER: 10985-001-001-9999-00

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LINIT	FACTOR
****	U#=64g==24p=#28p##053	42242422222222222222	******		********	F=420FF=
-001	BOYOP5	* Solids	96.9	•	0.01	1.0
-002	вочоре	% Solids	96.4	•	0.01	1.0
-003	BOYOP7	* Solids	95.2	•	0.01	1.0
-004	BOYOP2	% Solids	94.4	•	0.01	1.0
		Hydrazine	0.79 u	NG/KG	0.79	1.0
-005	BOYOP3	t Solids	93.2	*	0.01	1.0
		Hydrazine	1.1 u	NG/KG	1.1	1.0
-006	BOYOP4	* Solids	92.8	•	0.01	1.0
		Hydrazine	1.1 u	MG/KG	1.1	1.0
-007	BOYONS	* Solids	93.2	•	0.01	1.0
		Hydrazine	1.6 u	MG/KG	1.0	1.0
-008	BOYONS	t Solids	93.2	*	0.01	1.0
		Hydrazine	0.90 u	MG/KG	0.90	1.0
-009	BOYOPO	% Solids	96.2	*	0.01	1.0
		Hydrazine	0.87 u	MG/KG	0.87	1.0
-010	BOY0P1	• Solids	96.6	4	0.01	1.0
		Hydrazine	0.72 u	MG/KG	0.72	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/24/00

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 0004L024

WORK ORDER: 10985-001-001-9999-00

					REPORTING	DILUTION
Banple	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	PACTOR
	82544825488644888448	T=20057%=005F%00857%208			*****	******
BLANK10	OOLHZAO1-MB1	Hydrazine	1.0 u	NG/KG	1.0	1.0

INORGANICS ACCURACY REPORT 05/24/00

		DILUTION	PACTOR (SPK)		S.0	1.0
24			FRECOV		53.5 55.0	99.9
#: 0004LC		SPIKED	ANOUNT		53.5	5.0
RECRA LOT #: 0004L024		INITIAL	RESULT		0.79u	1.0 u
		SPIKED	SAMPLE		29.4	5.0
	00		ANALYTE	网络拉拉尔西亚拉拉马尔西班牙西班牙西班牙拉斯 计存储计算设计设计设计设计设计设计设计设计设计设计设计设计设计设计设计设计设计设计设	Hydrazine	Hydrazine
CLIENT: TNU-HANFORD B99-078	WORK ORDER: 10985-001-001-9999-00		SITE ID		BOYOF2	OOLHZAO1-NB1
CLIENT: T	WORK ORDE		SAMPLE	****	+00-	BLANKIO

INORGANICS PRECISION REPORT 05/24/00

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 0004L024

WORK ORDER: 10985-001-001-9999-00

			initial			DILUTION
Bample	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	PACTOR (REP)

-001RBP	BOYOP5	* Solids	96.9	97.0	0.12	1.0
-004REP	BOYOP2	Hydrazine	0.7911	0.9711	NC	1.0

Recra LabNet - Lionville Laboratory INORGANIC ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B99-078

DATE RECRIVED: 04/19/00 RFW LOT # :0004L024

DATE RECEIVED: 04/1.	J/ 00			•	KEN DOL # 10	00411024
CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0Y0P5						
% SOLIDS % SOLIDS	001 001 REP	s s	00L%S061 00L%S061	04/17/00 04/17/00	04/25/00 04/25/00	04/26/00 04/26/00
B0Y0P6						
% SOLIDS	002	s	00L%S061	04/17/00	04/25/00	04/26/00
BOYOP7						
% SOLIDS	003	s	00L%S061	04/17/00	04/25/00	04/26/00
B0Y0P2						
% SOLIDS HYDRAZINE HYDRAZINE HYDRAZINE	004 004 004 REP 004 MS	s s s	00L%S061 00LHZA01 00LHZA01 00LHZA01	04/17/00 04/17/00 04/17/00 04/17/00	04/25/00 04/20/00 04/20/00 04/20/00	04/26/00 04/20/00 04/20/00 04/20/00
воуорз						
% SOLIDS HYDRAZINE	005 005	s s	00L%S061 00LHZA01	04/17/00 04/17/00	04/25/00 04/20/00	04/26/00 04/20/00
B0Y0P4						
% SOLIDS HYDRAZINE	006 006	s s	00L%S061 00LHZA01	04/17/00 04/17/00	04/25/00 04/20/00	04/26/00 04/20/00
BOYON8						
% SOLIDS HYDRAZINE	007 007	s s	00L%S061 00LHZA01	04/17/00 04/17/00	04/25/00 04/20/00	04/26/00 04/20/00
B0Y0N9						
% SOLIDS	008	s	00L%S061	04/17/00	04/25/00	04/26/00

Recra LabNet - Lionville Laboratory INORGANIC ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B99-078

DATE RECEIVED: 04/19/00

RFW LOT # :0004L024

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
HYDRAZINE	008	s	00LHZA01	04/17/00	04/20/00	04/20/00
BOYOPO						
<pre>% SOLIDS HYDRAZINE</pre>	009 009	s s	00L%S061 00LHZA01	04/17/00 04/17/00	04/25/00 04/20/00	04/26/00 04/20/00
B0Y0P1						
% SOLIDS HYDRAZINE	010 010	s s	00L%S061 00LHZA01	04/17/00 04/17/00	04/25/00 04/20/00	04/26/00 04/20/00
LAB QC:						
HYDRAZINE HYDRAZINE	MB1 MB1 BS	S	00LHZA01 00LHZA01	N/A N/A	04/20/00 04/20/00	04/20/00 04/20/00

RECRA LabNo	et Use Only
-------------	-------------

00046024

Custody Transfer Record/Lab Work Request Page of __ FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



Client Ti	Retrige	rator #			5	-		1	9	5 _		-	↓	 	 							
		oling Date		#/Type Container		Liquid		<u> </u>	<u> </u>	<u> </u>	<u> </u>		_ _		 	 -	ļ					
Project # \(Project # _10985:_001-001=9999-00								<u> </u>	109		<u> </u>	4_	1	94		<u> </u>	!	<u> </u>	 		
Project Conta						Volume	_	Liquid		د					의					\sqcup		
		ager _0.\	TC41900			TOMINE		Solid	<u> </u>	120			4_	اوا	20		╀.		<u></u> '	igsquare		
oc Spac	or man.	Del Std TA	73045 Days			Preserv	vatives													Ш		
						ANALY	ere		<u> </u>		ORGANIC			1 1		INORG	-] '		ļ	
Date Rec'd	1:14 C	O Date D	oue 5.19 QC	! <u>-</u> .	···]	REQUE		->	Ş	BNA	PCB	£ £	超路	ğ		S deta					ļ	i
Account #							<u> </u>	Τ -	 -			1	- (1)			Net Use	Only		┰	<u></u>		
MATRIX CODES:					trix C					—		<u> </u>					T	T			$\neg \top$	
S - Soil	Lab ID	Client ID/D	Description		sen /)	Matrix	Date Collected	Time Collected		See SH	a		Q	.	UZAHI							
SE - Sediment SO - Solid	-						}	1		13	OPCB.		50%		封					1		
SL - Sludge W - Water	 -	2 aves		MS	MSD		40	+	┼		1		_		-		+	+	 -		-+	
O - Oil	<u> </u>	BOYOP		_		<u>S</u>	717 109	1030	 	X	X	<u> </u>	X		-+	_	┼	+		┢─┼	\longrightarrow	
A - Air DS - Drum	<u>∞</u>	BOYOP		_ -		4		<u> </u>	<u> </u>	X	×	-	X		-	-	-		igwdapprox igl		\longrightarrow	
Solids DL - Drum	<u>∞ ></u>	BOYOP		<u> </u>		┵	₩.	1030	 	X	X		X		-		ــــــ	 	ļ	\longmapsto	 -∔	
Liquids	004	BOYOP	<u>a</u>	_				10922	<u> </u>			<u> </u>		<u> </u>	<u> </u>		ļ					
Leachate WI - Wipe	<u>065</u>	BOYOPE	<u> </u>			$oldsymbol{\perp}$		0925	<u> </u>					2	<u> </u>							
X - Other F - Fish	∞	BOYOF	4			.1	<u> </u>	0900							<u> </u>					لطأ		
	∞ <u>¬</u>	BOYON				$oxed{oxed}$		0855						2	<							
	800	BOYONS	}				11_	0900						2 ا								
l	α	BOYOP				1		0710						7	< T					1		
1	010	BOYOP	1				I	0918						×								
Special Instruct		508 89910			DATE/F	EVISION	NS:				_			<u> </u>			REC	CRA Lab	Net U	te Only		
		JA OHO	70				i. Mu	n Ma	yn'	x (X					Samples 1) Shioo	were:			C Tage	was	
					2.									1) Shipp Hand De	~0	_	1)	Present ckagn	on Out	lei M		
				3							Airball #	201 4 61 6 0			Unbroke	-						
				_	_									2) Ambie	ent or 6	hilled		ckage				
					4.									3) Recei	ved in (Good	3)	Present	on Sad Yl or	tiple H		
						5 .									Conditio	υ(Ā) o	or N	41	Unbroke	γ) σ γ		
					6.							•		4) Label Properly			Sa	mp/q Y) or t			
Relinquished	·	Received Dat	te Time	Relinquis by	hed	T	Received		ale	Tin	ne	Discr	epancio	es C elwee	n		\mathfrak{O}			OC RATO OD SAM		
by	- _	Dy		EFFE	by _					Samples Labels and COC Record? Y or (1)			ഹ	5) Received Within			3					
Mes Ex		191 Centre	100 0930		WAS	POSITE ORIGINAL!					NOT	ES .			Holding Times On N Combin 2.3			. 3	ı			
	1	75			11 MJ	1		REW	(11 T	CN		P# 41,	235	795	3.5	3129			•			

Bechtel Hanfor	rd Inc.	CI	CHAIN OF CUSTODY/SAMPLE ANALYSIS F								B99-	078-158	Page 1 of 1	
Collector Fahlberg		Совърг М Т	ny Contact odd	Telepho 372-9				Project C TRENT,	Coordinat SJ	lor Pr	Price Code 8N		Data Tor	
Project Designation 200 Area Source characteriza	tion - 200-CW-1 OU		Sampling Location 200 East					SAF No. B99-078			Air Quality		45 Days	
Ice Chest No.	- 598		Logbook No. 1381-3		COA B20CW1671C			Method of Shipment Fed-EX *				<u> –</u>		
Shipped To TMA/RECRA	ecra	Offsite	Property No. A Q	(ØO	186	-	ŀ	Bill of L	ading/Aig -		579	153	-52	69
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C										
, 0 40, 40, 40, 5		Type of Container	aG											
G talle Her aller			No. of Container(s)	120mL										
Special Handling and/or Stor			Volume	Semi-VOA -	ļ	ļ								
	SAMPLE ANAI	vsis		8270A (TCL). TPH-Diesel Range - WTPH-D; PCBs - 8082						:	!			
Sample No.	Matrix *	Sample Date	Sample Time		4		- 19 - 19 - 19							
B0Y0P5	Soil	4.17.00	1020	×										
B0Y0P6	Soil	4.17.00	0 1020	×										
B0Y0P7	Soil	4.1700	1030	メ		<u> </u>	<u> </u>							
					ļ	ļ <u>.</u>		_ _						
		Sign/Prin		<u> </u>	<u> </u>	<u> </u>					<u> </u>			
CHAIN OF POSSESSIO Retinquished By Retinquished By Retinquished By Retinquished By Retinquished By	ate/Time ate/Time ate/Time	95 C	CIAL INSTR Prizine No	1010 101 100 100	from vity	ref	on.Ra Dort	d loc provi	ction. dad. <		Matrix * S Soil SE Sedancia SO Solid 5 - Studge w - Water O-Od A - Air DS Drum Solids D1 Drum I opads T Tesue W1 Wope L Liquid			
Relinquished By	Date/Time	D:										V Vegetalini X Offici		
Relinquished By	Date/Time	():	ete/Time											
LABORATORY Received By SECTION	<u>'</u>			n	tle							Da	ite/l'inie	
FINAL SAMPLE Disposal Me DISPOSITION			Dispo	sed By					D	ate l'une				

Bechtel	Hanford Inc.	ODY/S	AMPLE	ANAL	YSIS	REQUES	r	B99	9-078-157	Page <u>I</u>	٥ 💆		
Collector Fahlberg		sny Contact odd	Telepho 372-9	ne No.			Project Coordi TRENT, SJ		Price Code	8N	Data Turnaround 45 Days		
Project Designation 200 Area Source ch	naracterization - 200-CW-1 OU	Sampi 200	ing Location East				. <u></u> -	SAF No. B99-078		Air Quality	/ [1] 		
Ice Chest No.	Sm1598	Field I EL	ogbook No. 1381-3		COA B20CW16	71C		Method of Ship Fed-EX	ment				
Shipped To TMA/RECRA	ØOI	82	1	1	Bill of Lading	Air Bill	35.	795	3-5	269			
POSSIBLE SAMPI	Preservation	Cool 4C											
160×	ve	aG						_					
Special Handling a	nd/or Storage		No. of Container(s)	120ml.		-	 		-				
		· .	Volume	Hydrazine -									
	SAMPLE ANA		D1385							ļ		:	
Sample No	. Matrix *	Sample Date	Sample Time	*/ P&1-1 #4# # F			机波	red TE				al,	1 - W
B0Y0P2	Soil	4.17.00	0922	X						BO	WRI		
B0Y0P3	Soil	4.17.00	0925	x					<u> </u>	130	WCB		
B0Y0P4	Soil	4.17.00	0900	<u> </u>						Bo	MCB	<u> </u>	
				<u> </u>	ļ	<u> </u>			<u> </u>			<u> </u>	
CHAIN OF PO	DSSESSION	Sign/Prin	t Names		SPEC	LIAL INSTE	UCTIO	DNS	<u> </u>		<u> </u>	l	Matrix *
Relinquished By Relinquished By Relinquished By Relinquished By Relinquished By		Received By	B. Thoragan Di D. Di D. Di D. Di D. Di	ate/Time C'\3\\ ate/Time ate/Time ate/Time	ifte						D	ale/l ime	S=Soil SE-Sediment SO-Soil SE-Studge W-Water D-Oil A-Air DS Drum Soluty Drum Legady Lissue WI Wipe L Lagrad V Vegetation V Office
FINAL SAMPLE		·	Dispo	sed By			·	1	Pate: 1 nne				
DISPOSITION													

Collection	Bechte	l Hanford	Inc.	C	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST									B99-078-156 Page 1					
Support Description Desc				Comp	any Contact	Telepho	ne No.			Proje	ct Coordin	-100	Price Code	8N	-				
Shipped To Offsite Property No. Offsite Property No			on - 200-CW-1 OU										Air Quali	ty	45	Days			
Suppled To THAMBER R CCCA PRISSIBLE SAMPLE HAZARDSREMARKS NCN C. Special Handling and/or Storage Preservation Social Handling and/or Storage Preservation No. of Container No. of Contai	Ice Chest No.	SML	598_			B20CW1671C Fed-I						Fed-EX							
Special Handling and/or Storage	Shipped To			Offsit	e Property No.	DØC.	182	ı	1	Bill (of Lading/	ISO Vir BIII N	795	3-5	٩	ι Ι			
Special Handling and/or Storage Type of Container No. of Containe			Cool 4C	l								<u> </u>							
Special Handling and/or Storage No. of Container(s) 120ml.		12010 C										ļ							
SAMPLE ANALYSIS Sample No. Matrix * Sample Date Date Dills Dills BOYONB Soil 1-17-00 0910 A DILL DILL DILL DILL DILL DILL DILL DI					No. of Container(s)	1									 				
SAMPLE ANALYSIS Sample Date Sample Date Sample Time BOYONB Soil 4-17-00 0755 X BOYON9 Soil 4-17-00 0710 X BOYOPO SOIL 4-17-00 X BOYOPO SO	Special Handling	and/or Stora	ge		Volume	120m1.	<u> </u>												
Sample No. Matrix * Sample Date Sample Time BOYONB Soil 4.17.00 0855 X BOYOPO Soil 4.17.00 0710 X BOYOPO Soil 4.17.00 0718 X CILAIN OF POSSESSION CILAIN OF POSSESSION Sign/Print Names CILAIN OF POSSESSION Sign/Print Names SPECIAL INSTRUCTIONS Matrix * Sould Section Section Section Relinquished By Date/Time Received By Date/Time Relinquished By Date/Time Received By Date/Time Relinquished By Date/Time Received By Date/Time Received By Date/Time Received By Date/Time LARGINATION Received By Date/Time LARGINATION Received By Date/Time LARGINATION Received By Date/Time LARGINATION Received By Date/Time Disposal Method Deposed By Date/Time Date/Time Disposal Method Deposed By Date/Time		· · · · · · · · · · · · · · · · · · ·	CARING L' ANAI	i veic									1						
BOYONS BOYONS Soil 4.17.00 0900 A BOYOPO Soil 4.17.00 0910 A BOYOPO Soil 4.17.00 0918 A CITAIN OF POSSESSION Sign/Print Names Reimopished By Date/Time Rescived By Date/Time Rescived By Date/Time Rescived By Date/Time Received By Date/Time Date/Time Received By Date/Time Received By Date/Time			SABIFLE MAN	2.1010															
BOYOPO Soil 4.17.00 OG10 A BOYOPO Soil 4.17.00 OG10 A CHAIN OF POSSESSION Relinquished By Date/Time Proceeding By Date/Time Proceed By Date/Time Procee	Sample N	lo.	Matrix *	Sample Date	Sample Time	1. 5 - 5 - 2.5 1. 5 - 5 - 5 - 5					ea East a filte	1			<u> </u>				
BOYOPO Soil 4.17-00 0910 A CHAIN OF POSSESSION Sign/Priot Names Relinquished By Date/Time Received By Date/Time Relinquished By Date Time Received By Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	BOYON8		Soil	4.17.00	0855	 							Ra	JCRA)				
BOYOP1 Soil 7-17-00 0 918 X CHAIN OF POSSESSION Sign/Print Names Relinquished By Date/Time / Received By Date/Time Relinquished By Date/Time / Received By Date/Time Relinquished By Date/Time Received By Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	BOYON9		Soil	4.17.00	0900	大									<u> </u>				
CHAIN OF POSSESSION Sign/Print Names Relinquished By Date/Time Pageword By Date/Time Relinquished By Date/Time Received By Date/Time Ara Ara Relinquished By Date/Time Received By Date/Time Ara Ara By Date/Time Ara Relinquished By Date/Time Received By Date/Time	BOY0P0		Soil	4.17.00	0910	大		I							<u> </u>				
Relinquished By Date/Time Received By Date/Time	B0Y0P1		Soil	4.17.00	0918	X	Ĭ <u> </u>						,	4	ļ				
Relinquished By Date/Time Received By Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	(21111) (2111)	Accree (A)		Si (Di-	4 Names		lene								1	Mateix •			
Relinquished By Date/Time Received By Date/Time Date/Time Received By Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	Relinquished By		Date/Time / > 4			ate/Time /	SPE	CIAL INSER	avc i iv.	פחע]			
Relinquished By Date-Time Received By Date-Time EABORATORY Received By Date-Time	Retfood	J.P.F.	h ben 4.17.	00 Y 11/1			<i>3</i> 45									SE: Sediment			
Relinquished By Date-Time Received By Date/Time Bull 19.00 U930 Bull Date/Time Bull 19.00 U930 Bull Date/Time Bull 19.00 U930 Bull Date/Time	Religioushed By	tere	DaleTime /		۳ کرا. ^۱	ale/Time										S - Sindge W + Water			
Relinquished By Date Time Received By Date/Time Relinquished By Date Time Received By Date/Time Relinquished By Date Time Received By Date/Time Relinquished By Date-Time Received By Date/Time LABORATORY SECTION FINAL SAMPLE Disposal Method Disposed By Date Time Disposed By Date Time	Relinquished By	243	Date/Tinfe													A - Air			
Relinquished By Date Time Received By Date/Time Relinquished By Date Time Received By Date/Time LABORATORY SECTION FINAL SAMPLE Disposal Method Received By Date/Time Disposal Method Disposed By Date Time Date Time Date Time		× 41					<u>~`</u>									Dt. Drum Lipeds			
Relinquished By Date Time Received By Date/Time Received By Date/Time Date/Time LABORATORY SECTION FINAL SAMPLE Disposal Method Received By Date/Time Date/Time Disposed By Date Time Disposed By Date Time	Reinquished By		Date-Time	Received By	j U.	aré, I huic	ļ									WI Wipe L Liquid			
EABORATORY Received By Title Date/Lime SECTION Disposal Method Disposal Method Disposed By Date Time	Relinquished By		Date Time	Received By	D	ate/fime													
SECTION FINAL SAMPLE Disposal Method Disposed By Date Time	Relinquished By		Date Time	Received By	D	ale/l ime													
FINAL SAMPLE Disposal Method Disposed By Date Time	***************************************						ile				_			1	Date/Lime	<u> </u>			
	FINAL SAMPLE	Dispusal Meth	od					Dispo	sed By	-	- ··- <u>-</u>		<u></u>		Date lime				